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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,020	07/29/2005	Shinichi Miyamoto	266734US0PCT	4622

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EXAMINER	
ENIN-OKUT, EDU E	
ART UNIT	**PAPER NUMBER**
1795	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/526,020	MIYAMOTO ET AL.	
	Examiner	Art Unit	
	Edu E. Enin-Okut	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *2 and 4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/21/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

NICKEL BASED COMPOUND POSITIVE ELECTRODE MATERIAL PRIMARY CELL

Response to Amendments

1. The amendments filed on May 26, 2009 were received. Applicant has amended claims 1 and 3; cancelled claims 2 and 4; and added claims 5-17. Claims 1, 3 and 5-17 are pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

3. The objection to the drawings is withdrawn in light of amendments made to Figs. 2-5.

Claim Objections

4. The objection to claim 4 under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim, is withdrawn because claim 4 was cancelled.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 10 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 10 and 16 recite

"… the X-ray diffraction peak [as recited in claims 1 and 3] corresponds to a diffraction angle of 18°". The instant specification refers to this peak as being "the diffraction peak around 18°" and "a diffraction angle of at around 18°". No where in the specification is this angle discussed as "a diffraction angle of 18°" as recited in the claims.

7. The rejection of claims 1-4 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is withdrawn because claims 1 and 3 were amended; and, claims 2 and 4 were cancelled.

Claim Rejections - 35 USC § 102

8. Claims 1, 5 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by Ogasawara et al. (JP 11-219701 A; refer to Abstract and machine translation).

Regarding claims 1, 5 and 10, Ogasawara teaches a sealed alkaline storage battery by mixing a first and second active material composed of 1-10 wt % of an oxycobalt hydroxide (cobalt oxyhydroxide) covering a oxynickel hydroxide (nickel oxyhydroxide) powder (Abstract; machine translation, para. 24). At least one element may be solved in the oxynickel hydroxide, such as Zn, Mg, Ca, Mn, Al, Cd, Y, Co, Bi, La, Yb, Er, Gd, and Ce (Abstract; machine translation, para. 18, 34).

As to the cobalt content of the coated particles, Ogasawara discusses the incorporation and results of the use of an oxycobalt hydroxide (cobalt oxyhydroxide) at 0.3, 0.5, 1.0 and 3.0 wt % (para. 47).

As to the half-width of the nickel oxyhydroxide compound particles and the location of the X-ray diffraction peak, although Ogasawara does not expressly teach the properties of the of particles as recited in this claim, it is the position of the examiner that such properties are inherent, given that both Ogasawara and the instant invention have similar structures and composition. A reference which is silent

about a claimed invention features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. *In re Robertson*, 49 USPQ 1949 (1999). See MPEP 2112.

Claim Rejections - 35 USC § 102 / 103

9. The rejection of claims 1 and 2 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tanigawa et al. (US 6,858,347) is withdrawn because claim 1 was amended and claim 2 was cancelled.

Claim Rejections - 35 USC § 103

10. The rejection of claims 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Tanigawa et al. as applied to claims 1 and 2 above, and further in view of Durkot et al. (US 2001/0009741) is withdrawn because claim 3 was amended and claim 4 was cancelled.

11. The rejections of claims 1, 2, 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Harada et al. (WO 02/069420) in view of Tanigawa et al. and Durkot et al. are withdrawn because claims 1 and 3 were amended; and, claims 2 and 4 were cancelled.

12. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogasawara et al. as applied to claims 1, 5, and 10 above, and further in view of Durkot et al. (US 2001/0009741).

Ogasawara is applied and incorporated herein for the reasons above.

Regarding claims 3 and 17, Ogasawara teaches the composition of primary battery with a positive electrode, as discussed above, and a negative electrode (machine translation, para. 32). The positive electrode is produced using a binder and the subsequent positive active material paste is used to fill the pores of a conductive base of nickel foam (machine translation, para. 32).

Ogasawara does not expressly teach that the negative electrode is composed of a zinc or a zinc alloy with a particle diameter of 75 mm or less in a proportion of 10 to 20 mass %, or 10 to 15 mass %.

Durkot teaches a negative electrode containing zinc-based particles having a multi-modal distribution, such as a bi-modal distribution, of particle sizes, particle morphologies and/or particle compositions for use in an alkaline battery, such as a primary alkaline battery (Abstract; para. 18). At least about 1 percent, by weight, of the zinc-based particles have a -200 mesh size or smaller (i.e., 0.75 mm or 75 μm) (para. 18). Even higher weight percentages (e.g., 6 percent, 10 percent, 25 percent, 50 percent, 80 percent, 90 percent or 100 percent) of zinc-based fines can be preferable (para. 18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the zinc-based negative electrode active material of Durkot in the primary battery of Ogasawara because Durkot teaches that its use can enhance cell performance characteristics such as high discharge rate performance (see Durkot, para. 13).

13. Claims 1, 3, 5-8, 10-14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christian et al. (US 7,081,319) in view of Ogasawara et al. Additional supporting evidence provided by US 2001/0009741.

Regarding claims 1, 3, 5-8, 10-14, 16 and 17, Christian teaches a battery including an anode, a cathode, and an alkaline electrolyte (6:4-6, 6:31-33). The cathode may be composed of 2-15 wt % cobalt oxyhydroxide-coated nickel oxyhydroxide and conductive carbon particles including graphite particles (Abstract; 4:50-54, 5:28-32, 6:31-33, 7:33-34, 7:57-58). The anode may be composed of zinc materials including zinc particles (6:16-30).

As to the cobalt content of the coated particles, it has been held that obviousness exists where the claimed ranges overlap or lie inside ranges disclosed by the prior art. *In re Wertheim*, 541 F.2d 257, 191

USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05 (I).

As to the size of the zinc or zinc alloy particles used in the negative electrode, Christian teaches that zinc particles used include examples as described in US Application No. 09/156,915 which was incorporated by reference in its entirety (6:22-27). US Application No. 09/156,915, published as US Patent Application Publication No. US 2001/0009741, describes that zinc particles having a -200 mesh size or smaller (i.e., 0.75 mm or 75 μm) are used in the negative electrode at least about 1 percent by weight, and even higher weight percentages including 6 percent, 10 percent, and 25 percent (para. 18).

As to the diameter of the particles of the nickel oxyhydroxide base compound, Christian teaches that the nickel oxyhydroxide can be produced from nickel hydroxide particles having a size ranging from 1 and 100 microns, 2 to 50 microns, or 5 to 10 microns (Abstract; 4:37-39).

Christian does not expressly teach that the nickel oxyhydroxide base includes zinc, cobalt or an eutectic crystal with zinc and cobalt; or, the half-width of an X-ray diffraction peak of the nickel oxyhydroxide and location of that peak; or, that the positive electrode material also includes at least one compound selected from the group consisting of a compounds of Y, Er, Yb, and Ca.

As to the inclusion of zinc or cobalt in the nickel oxyhydroxide base, Ogasawara teaches a sealed alkaline storage battery with a positive active material composed of 1-10 wt % of an oxycobalt hydroxide (cobalt oxyhydroxide) covering a oxynickel hydroxide (nickel oxyhydroxide) powder (Abstract; machine translation, para. 24). At least one element may be solved in the oxynickel hydroxide, such as Zn, Mg, Ca, Mn, Al, Cd, Y, Co, Bi, La, Yb, Er, Gd, and Ce (Abstract; machine translation, para. 18, 34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to elements such as Zn, Co, Y, Yb, Er, and Ca in the positive electrode used in the battery of Christian because Ogasawara teaches that their inclusion assists in controlling the expansion of the positive active material (see Ogasawara, para. 18).

As to the half-width of the nickel oxyhydroxide compound particles and the location of the X-ray diffraction peak, Christian teaches that the location of the X-ray diffraction peak for its nickel oxyhydroxide between about 19° (Fig. 2). It has been held that obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2144.05 (I). With respect to the half-width, although Christian does not expressly teach this property of the of particles, it has been held that either anticipation or obviousness exists where applicant claims a composition in terms of a function, property or characteristic, and the composition of the prior art is the same as that of the claim but the function, property or characteristic is not explicitly disclosed by the reference. *In re Best*, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). See MPEP 2112 (III).

14. Claim 1 and 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al. (WO 02/069420 A1; refer to US 7,344,803 as an English translation) in view of Ogasawara et al.

Regarding claims 1 and 10, Harada teaches an alkaline primary cell having a prolonged life that includes an inexpensive β-form nickel oxyhydroxide as a positive electrode active material (Abstract). The nickel oxyhydroxide contains cobalt and zinc as substitutional elements for solid solution and a diffraction peak obtained as a result of measurement of X-ray powder diffraction of nickel oxyhydroxide appears only in the vicinity of 18.5° within a range of $2\theta = 10° - 30°$ (Abstract; 2:40-53, 5:46-6:3). The cell also employs a negative electrode formed of a negative active material including 1 wt. % of an acrylic resin added to 60 wt. % of a zinc powder (6:6-10).

Harada does not expressly teach that particles of the nickel oxyhydroxide base compound has a surface coated with a higher oxide of cobalt; or, that the particles of the nickel oxyhydroxide compound has a half-width of an X-ray diffraction peak in an X-ray diffraction pattern of 0.4 to 0.48 obtained by

using a CuKα line as an X-ray source; or that the X-ray diffraction peak corresponds to a diffraction angle of 18°.

As to the coating of an oxide of cobalt, Ogasawara teaches a sealed alkaline storage battery by mixing a first and second active material composed of 1-10 wt % of an oxycobalt hydroxide (cobalt oxyhydroxide) covering a oxynickel hydroxide (nickel oxyhydroxide) powder (Abstract; machine translation, para. 24). Ogasawara discusses the incorporation and results of the use of an oxycobalt hydroxide (cobalt oxyhydroxide) at 0.3, 0.5, 1.0 and 3.0 wt % (para. 47).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to place a coating of a cobalt oxide onto the nickel oxyhydroxide particles in the primary battery of Harada because Ogasawara teaches that the coating can serve as a conducting agent and improve electrode discharge characteristics (see Ogasawara, para. 1, 6, 25).

As to the half-width of the nickel oxyhydroxide compound, although Harada and Ogasawara do not expressly disclose the properties of the of particles as recited in this claim, it is the position of the examiner that such properties are inherent, given that both Harada, as modified by Ogasawara, and the instant invention have similar structures and composition. it has been held that either anticipation or obviousness exists where applicant claims a composition in terms of a function, property or characteristic, and the composition of the prior art is the same as that of the claim but the function, property or characteristic is not explicitly disclosed by the reference. *In re Best*, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). See MPEP 2112 (III).

15. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harada et al. and Ogasawara et al. as applied to claim 1 above, and further in view of Durkot et al.

Harada and Ogasawara are applied and incorporated herein for the reasons above.

Regarding claim 3, the limitations recited in this claim have been addressed above with respect to claim 1, except for the negative electrode material is composed of a zinc or a zinc alloy with a particle diameter of 75 mm or less in a proportion of 10 to 20 mass %, or 10 to 15 mass %.

Durkot teaches a negative electrode used in an alkaline battery containing zinc-based particles, having of -200 mesh size or smaller (i.e., 0.75 mm or 75 μm), where at least about 1 percent by weight, and even higher weight percentages including 6 percent, 10 percent, 25 percent, as discussed above. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the zinc-based negative electrode active material of Durkot in the primary battery of Harada, as modified by Ogasawara, because Durkot teaches that its use can enhance cell performance characteristics such as high discharge rate performance (see Durkot, para. 13).

Response to Arguments

16. Applicant's arguments with respect to claims 1, 3 and 5-17 have been considered but applicant has amended the claims such that new grounds of rejection were necessitated.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Kate et al. (US 6,083,642) discloses a positive electrode for an alkaline storage battery composed of cobalt oxyhydroxide enveloping at least a portion of a nickel hydroxide and/or nickel oxyhydroxide base.

18. The Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Edu E. Enin-Okut** whose telephone number is **571-270-3075**. The examiner can normally be reached on Monday to Thursday, 7 a.m. - 3 p.m. (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edu E. Enin-Okut/
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795